

METEOROLOGICAL SUMMARY FOR BRAZIL, FEBRUARY, 1928

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Unusual activity characterized the movement of the atmosphere over the southern and central parts of the country. Eight anticyclones entered the southern part of the continent. Some of these pressure systems probably dominated conditions over considerable areas and had rather perceptible gradients, but with their advance the gradients weakened abruptly. The depressions of higher latitudes and that of the continent were very active, giving rise to a number of storms, mainly on the southern and middle coasts of Brazil.

Rainfall was generally light in the northern and central regions with deficiencies of 2.60 and 3.10 inches, respectively. In the southern region, however, there was abundant precipitation, the average monthly amount being 1.80 inches above the normal.

In the State of Bahia and in the northeastern part of the country the deficiency in rainfall was injurious to the sugar-cane crop and unfavorable for the planting of cotton, cereals, and vegetables. Cotton, coffee, sugar cane, tobacco,

cereals, and vegetables, still suffering from drought, mainly at points in the central region of the country, were benefited by occasional rains and have now improved in general condition. In the south and in the region of the Amazon the condition of some of these crops is good.

At Rio Janeiro the greater part of the month was characterized by fine weather; there were about 10 days with unsettled weather and rain and on some of these thunderstorms and high winds occurred. The mean temperature and the mean minimum temperature were 1.1° F. above the normal and the excess of the mean maximum was greater, 1.8° . Temperatures above 95° were recorded in the suburbs.

There were frequent heavy showers during the last decade. Cloudiness was considerably below normal; the total duration of sunshine was 48 hours above the average. Southerly winds with occasional high velocities prevailed; on the 4th, 23d, and 26th the maximum velocity exceeded 45 miles per hour.—*Transl. W. W. R.*

NOTES

DOCTOR DORNO RETIRES FROM THE DAVOS METEOROLOGICAL-PHYSICAL OBSERVATORY

After 21 years' activity in organizing and developing the Meteorological-Physical Observatory at Davos, Switzerland, Dr. C. Dorno retired on April 1, 1928, at the age of 63.

The following communication from Doctor Dorno is self-explanatory:

During the period 1907-1922, the observatory was equipped and maintained out of my personal funds. From 1922-1926, the expenses for carrying on the work were met by the Swiss Institute for Mountain Physiology and Tuberculosis Investigations, the observatory remaining in my private possession. On October 1, 1926, the observatory was taken over by the above-named institute and Doctor Lindholm, chief meteorologist in the Swedish service and for many years assistant to Prof. K. Angström, was granted leave of absence by his Government to engage in the work of the institution.

I am leaving my life work confident that my earnest and energetic successor, after a year and a half of collaboration and counsel with myself, will remain conscientiously devoted to the comprehensive work of the observatory.

Thanks are due for the interest and encouragement shown in foreign lands. Foremost among these are Sweden, which was the pioneer in solar investigations and now gives me an esteemed successor, and the United States, whose Weather Bureau, through its chief, Prof. C. F. Marvin, and Dr. H. H. Kimball of the division of solar radiation investigations, and also several universities, have maintained close connection with the Davos Observatory and have manifested a lively interest in its work since the close of the World War.

There has been fine harmony in the relations and interchanges between the representatives of almost all civilized lands here convened and the modest little Hochgebirgsobservatorium—the first meteorological-physical observatory in long-continued operation. It was this continuity of observations which brought results in the field of atmospheric optics through the perception and proof that summer, utilized exclusively at other places, is the most unfavorable season.

The idea of an "applied meteorology," originally applied by me to "medical meteorology" and later changed to "physiological meteorology" (so as to include both the plant and animal kingdoms) has been adopted and is now spreading throughout the world.

Lightning from clear sky.—On July 2, 1927, Stanley Lukens, a forest ranger, was supervising the opening of the Gold Peak lookout on the Missoula National Forest.

While Lukens and his assistant were setting up the fire finder they aimed the alidade at various prominent topographic features to check the orientation of the map. As they were making one of these test observations toward a point southeast of Gold Peak both men saw a flash of lightning strike the ground almost on their line of alidade sight, and about 15 miles from them. This flash was followed by four others within the next few minutes. The first strike started a forest fire, the others did not. The phenomenon was most peculiar because all of these strikes descended almost vertically, apparently out of a blue sky, the nearest clouds being about 15 and 25 miles, respectively, from the area struck.

Both Lukens and the lookout, a Mr. Wertz, were greatly impressed by this condition because their general impression was that at that time, 2:30 p. m., the sky was practically clear. A small thunderstorm had passed over Gold Peak between 7:50 and 8:15 a. m. that day, then the sky had cleared. Mr. Lukens remembers, however, that at the time of these "bolts from the blue," there were two small cumulo-nimbus clouds south and southwest, 30 to 40 miles from Gold Peak. These lightning bolts, all of which struck within a small area not over half a mile in diameter, appeared to descend almost vertically, and they were not between the two clouds, but in a northeasterly direction and over 15 miles from them.

No thunder was heard from these flashes, and no further bolts were seen. About half an hour after these strikes the cloud which had been south of Gold Peak passed over the struck area and delivered sufficient rain to extinguish the fire, which had been smoking appreciably. This cloud is reported by Mr. Lukens to have been about 1 to $1\frac{1}{2}$ miles long by one-half to three-quarters of a mile wide, and was of the cumulus type.—*H. F. Gisborne.*

Range of atmospherics. (Report from the Committee on Radiation on the Relation between Atmospherics and Weather. *Roy. Met'l Soc. Jour.*, 53:327-388; discussion, pp. 389-400, Oct., 1927.)¹—The report deals with the results obtained by 48 observers listening to a broadcast talk and to which the time incidence of individual atmospherics can be referred.

¹ Reprinted from Science Abstracts.

The duration and intensity of the disturbances were noted. The data were tabulated to give (a) observations with complete simultaneity without adjustment, and (b) observations where one time unit allowance is allowed for the adjustment of the personal error. The place of origin of individual atmospheric disturbances was recorded and a "disturbance index" given, i. e., the relative number of atmospheric disturbances per unit time referred to 100 for the most disturbed evening. The weather in the region of the atmospheric "fixes" was found from weather charts. In some cases atmospheric disturbances were traced as originating at clearly defined cold fronts or regions of thunderstorm activity. It was concluded that (1) the effective range of reception of very many atmospheric disturbances heard on normal broadcast receivers exceeds 3,000 km. and reaches at least 7,000 km.; (2) atmospheric disturbances of range below 200 km. are not shown by any evidence; and (3) cold fronts are of great importance in the origination of atmospheric disturbances. In the Discussion, A. G. Lee described experiments showing that atmospheric disturbances which disturb long-distance commercial reception are not of short-distance origin, seeing that the distribution in azimuth is not uniform. J. A. Slee considered that for seagoing conditions most of the atmospheric disturbances heard were not of very long range. G. C. Simpson suggested the upper air as a source of atmospheric disturbances. R. Bureau supplied observations and diagrams to illustrate his view that atmospheric disturbances are a local consequence of instability. T. L. Eckersley suggested that some of the differences between the committee's results and those of Bureau might be due to differences of wave-length. The Committee replied to the discussion.—R. S. R.

Arctic Ice in 1927: The *Annual Report* by the Danish Meteorological Office on the state of the ice in Arctic Seas in 1927, has recently been published. In the Barents Sea the most noteworthy features were the con-

gestion of ice off the entrance to White Sea from March until May, and the open sea up to Fraz Josef Land in September. The west coast of Novaya Zemlya was clear in July, and the Kara Sea was almost clear in August and quite clear in September. Around Spitzbergen there was much less ice than usual, except in October and November, when a broad belt of pack lay off the west coast. Bear Island, however, was not clear of ice from the autumn of 1926 until the end of May. On the east coast of Greenland the belt of ice seems, on the whole, to have been wider than usual, but the coasts of Iceland were free throughout the year. In Davis Strait there was less ice than usual, and on the Newfoundland Banks the ice season was short and had ended entirely by August. In Baffin Bay and the channels of the Canadian Arctic Archipelago, ice was scarcer than in most years. Davis Strait was almost clear in July, but Wrangel Island was not approachable until August. The report is furnished with the usual ice distribution charts for the spring and summer months. [Reprinted from *Nature*, London, April 14, 1928.]

March weather in the United States 50 years ago.—The weather of March, 1878, was noteworthy in at least two respects; first, atmospheric pressure was exceptionally low and temperature unusually high in the Missouri Valley and, second, the month, as a whole, was one of the warmest of that name ever experienced. A Missouri River steamboat passed Leavenworth, Kans., bound for Montana, on the 27th of March, arrived at Lower Brule Agency in the present State of South Dakota, on April 1, Fort Lincoln on the 9th, and Bismarck, N. Dak., on the 9th. Leaving that point on the 12th the steamer arrived at Fort Benton—the headwaters of navigation on the Missouri—on April 30, thus making the earliest trip ever accomplished, due to the open condition of the river and the freedom from ice.—A. J. H.

BIBLIOGRAPHY

C. FITZHUGH TALMAN, in Charge of Library

RECENT ADDITIONS

The following have been selected from among the titles of books recently received as representing those most likely to be useful to Weather Bureau officials in their meteorological work and studies:

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On the influence of solar activity on radio transmission. p. 166-173. figs. 23 cm. (Repr.: Proc. Inst. radio engin., Feb., 1928.)

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